

PCT/DE2004/002758

Webasto AG

5

CLAIMS

10 1. A reformer for converting fuel (12) and oxidant (16,  
18, 20) into reformat (22), comprising an oxidation zone  
(24) and a reforming zone (26), wherein a mixture of fuel  
(12) and oxidant (16, 18, 20) may be supplied to the oxida-  
15 tion zone (24), and the mixture may be supplied at least  
partially to the reforming zone upon an at least partial  
oxidation of the fuel (12) **characterized in** that

- fuel (14) may additionally be supplied to the reform-  
ing zone (26), and
- 20 - heat (28) may be supplied to the reforming zone (26).

2. The reformer according to claim 1, **characterized in**  
that heat (28) from the exothermic oxidation within the  
25 oxidation zone (24) may be supplied to the reforming zone  
(26).

3. The reformer according to claim 1 or 2, **characterized**  
**in** that the reforming zone (26) comprises an oxidation sup-  
30 ply through which oxidant (16, 18, 20) may be supplied ad-  
ditionally.

4. The reformer according to one of the preceding claims,  
**characterized in** that

- the additional fuel (14) may be supplied to an injection and mixture forming zone (30), and

5       - the additional fuel (14) can flow from the injection and mixture forming zone (30) into the reforming zone (26).

10       5.    The reformer according to one of the preceding claims, **characterized in** that the additional fuel (14) is at least partially evaporated by the thermal energy of the gas mixture (34) exiting the oxidation zone (24).

15       6.    The reformer according to claim 4 or 5, **characterized in** that, the gas mixture (34) generated in the oxidation zone (24) may be partially supplied to the reforming zone (26), bypassing the injection and mixture forming zone (30).

20       7.    A method for converting fuel (12) and oxidant (16, 18, 20) into reformat (22) in a reformer having an oxidation zone (24) and a reforming zone (26), wherein a mixture of fuel (12) and oxidant (16, 18, 20) is supplied to the oxidation zone (24), the mixture being supplied at least partially to the reforming zone (26) upon an at least partial oxidation of the fuel (12), **characterized in** that

30               - additional fuel (14) is supplied to the reforming zone (26), and

              - heat (28) is supplied to the reforming zone (26).

8. The method according to claim 7, **characterized in** that heat (28) from the exothermic oxidation within the oxidation zone (24) is supplied to the reforming zone (26).
- 5 9. The method according to claim 7 or 8, **characterized in** that the reforming zone (26) comprises an oxidant supply through which additional oxidant (16, 18, 20) is supplied.
- 10 10. The method according to one of claims 7 to 9, **characterized in** that
- the additional fuel (14) is supplied to an injection and mixture forming zone (30), and
  - 15 - the additional fuel (14) flows from the injection and mixture forming zone (30) into the reforming zone (26).
- 20 11. The method according to one of claims 7 to 10, **characterized in** that the additional fuel (14) is evaporated at least partially by the thermal energy of the gas mixture (34) exiting the oxidation zone (24).
- 25 12. The method according to claim 10 or 11, **characterized in** that the gas mixture (34) which is produced in the oxidation zone (24) is partially supplied to the reforming zone (26), bypassing the injection and mixture forming zone (30).